

*Hyla Copii.*

Tongue circular, nicked and free behind. Vomerine teeth in two short transverse groups in the middle between the choanæ. Head broader than long, rather strongly depressed; snout rounded, as long as the diameter of the orbit; canthus rostralis very feebly marked; loreal region concave; inter-orbital space as broad as the upper eyelid; tympanum very distinct, half the diameter of the eye. Fingers free, toes three-fourths webbed; disks smaller than the tympanum; subarticular tubercles moderate; a very distinct fold along the inner side of the tarsus. The tibio-tarsal articulation reaches the eye. Upper surfaces with small smooth warts; lower surfaces (gular sac included) closely granulate; a strong fold across the chest. Greyish olive above, with more or less distinct darker spots or marblings on the head and body, and cross-bands on the limbs; hinder side of thighs with small brown mottlings; front half of throat brown. Male with a large external gular vocal sac.

From snout to vent 42 millim.

Two male specimens from El Paso, Texas.

This species, which I have pleasure in dedicating to the celebrated American herpetologist, resembles *H. versicolor*, from which it is at once distinguished by the absence of web between the fingers.

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VI.—*A List of fifty Erotylidæ from Japan, including thirty-five new Species and four new Genera.* By GEORGE LEWIS, F.L.S.

THE first descriptions of Japanese Erotylidæ were published by Mr. G. R. Crotch in 1873; and since then, as the country has been gradually opened for inland travel, species have been added from time to time until the present day, when the list contains fifty species. Marseul's Catalogue for Europe gives twenty-three species, and Heyden's for Siberia twenty-four; but the last and the present list can have no pretention to completeness. The majority of the known Erotylidæ are from the New World.

Japan is a country which is in many ways favourable to the group, as the damp elevated forests which occupy large areas in the mountainous districts produce quantities of fungi from the early days of spring to the last days of autumn.

Edible mushrooms are an article of commerce, and are largely exported to China, being at the same time one of the sources of revenue to the government, which in many districts has the monopoly of the forests where they grow. In May 1880, when I first went into the forests in the Hakone district, I found large oaks felled for the purpose of mushroom-culture; the horizontal trunks were covered with mushrooms throughout their length from spawn sown, purposely I believe, in the summer previous. I had filled several large sheets and captured as many new species before I was warned that government property was being destroyed and the penalties for such conduct severe. But in the wilder forests, which are rarely trodden even by the native peasants, fungi are equally plentiful, and there is no lack of hunting-ground for the entomologist.

Most of the *Erotylidæ* in Japan are imagos before the middle of June, and very few survive at the end of the year to hibernate. An exception is *Dacne picta*, which may be found under *Planera*-bark any day in January close to the bund at Yokohama. In the second and fourth stages they are all fungivorous, and during pupation are dependent on the moisture in the plants in which they remain imbedded for their preservation. In temperate climates the *Erotylidæ* often appear to be of periodical occurrence; but if this is not strictly true the collector is at any rate greatly dependent on fortuitous circumstances, such as season and place, for the capture of the rarer species, and these contingencies sometimes occur only at long intervals. In Kioto, within the temple compound of the Nishi Honwanji, I found on the 17th June, 1881, *Aulacochilus japonicus* in the greatest profusion on fungi on some upright cherry-poles, and numerous specimens were crushed on the pathways; and this was not a remarkable phenomenon considering the habits of the family.

There is one character in the family to which it is necessary specially to allude. In a long series of specimens the largest examples are invariably males. I have one example of *Encaustes prænobilis* which measures 35 millim., and the smallest male measures 30 millim. The first is perhaps the largest *Erotylian* in any cabinet, and I can still remember the muscular sensation its weight caused as it feigned death in my hand when I took it off an old beech at Nikko. The largest female measures 31 millim., and there are several only 16. In *Eudæmonius tuberculifrons* and *Neotriplax atrata* the larger size of the males is conspicuous, and it is evident from the material in hand that this characteristic is a family trait. In the *Languridæ* the females are the larger,

and this is the rule also in the Chrysomelidæ. In the wood-feeding Lucanidæ the males again are the largest, and this character is a family one; it is not generic or specific. In the Cerambycidæ it is not constant either way, the female is smallest in *Monohammus grandis*, Waterhouse, but the males are more usually so.

I have placed *Microsternus* and *Megalodacne* among the Dacnini because the tarsi are visibly five-jointed. The species placed under Encaustini have no true prosternal keel.

There is only one synonym to record, which is very satisfactory.

*List of Species, arranged generically and according to their specific similitude.*

DACNINI.		<i>Cyrtotriplax nigropunctata</i> .
<i>Dacne japonica</i> , Crotch.		— pallidiventris.
— picta, Crotch.		— cenchris.
— zonaria.		— maculifrons.
— fungorum.		— discalis.
<i>Microsternus perforatus</i> , Lewis.		— rufipennis.
— Crotchi.		— niponensis, Lewis.
— tricolor.		— solivaga.
— higonius.		— circumcincta.
<i>Megalodacne bellula</i> , Lewis.		— tripartitaria.
		— basalis.
		— similis.
		— ruficornis.
		— connectens.
ENCAUSTINI.		<i>Triplax gracilentata</i> , Solsky
<i>Encaustes prænobilis</i> , Lewis.		[ <i>sibirica</i> , Crotch].
<i>Episcapha Fortunei</i> , Crotch.		— devia.
— Gorhami, Lewis.		— ainonia.
— taishoensis, Lewis.		— sufflava.
— hamata, Lewis.		— lætabilis.
<i>Renania atrocyanea</i> .		— canalicollis.
		— discicollis.
TRIPLACINI.		— japonica, Crotch.
<i>Neotriplax atrata</i> .		— atricapilla.
— Lewisii, Crotch.		<i>Eudæmonius tuberculifrons</i> .
— biplagiata.		
— pallidicincta.		
<i>Cyrtotriplax sobrina</i> .		
— centralis.		
— pantherina.		
— latifasciata.		
		EROTYLINI.
		<i>Aulacochilus Bedeli</i> , Harold.
		— japonicus, Crotch.
		<i>Satelia scitula</i> .

The three following genera have tarsi with five distinct joints:—

*Dacne japonica*.

*Dacne japonica*, Crotch, Ent. Mon. Mag. ix. p. 188 (1873).

This species is not very common; it has been taken at

Nagasaki, Nikko, and Sapporo. It varies in size from 3 to  $4\frac{1}{2}$  millim.

*Dacne picta.*

*Dacne picta*, Crotch, *l. c.* p. 188 (1873).

Common at Nagasaki and near Yokohama. Found under the bark of *Planera* in winter.

*Dacne zonaria.*

Elongato-ovalis, nigra, nitida; elytris macula humerali tarsisque rufis. L.  $3\frac{1}{4}$  mill.

Densely black and shining; head and thorax sparsely and somewhat coarsely punctate, the latter strongly marginate laterally; elytra punctate-striate, with punctures in lines down the interstices, punctures rather finer than those of thorax, one red belt, oblique, touching the edge only at the humeral prominence at the base, leaving a black margin both at external and sutural edges; the hamate pattern, so common in the family, is rather broad at the scutellum. The antennæ, sometimes obscurely reddish at the base, are somewhat long and the club somewhat free; the tarsi and knees are reddish. Beneath, the head and prosternum are coarsely and rather rugosely punctured; the intercoxal lines reach the base of the prosternum; the mesosternum is rather finely punctured.

The colour separates this species from the other Japanese species, and the antennæ are proportionally longer, with the club lax. It is also unlike any other species I know.

Found at Kiga, Miyanoshita, and Nikko abundantly; Konosé, Fukushima, and Sapporo are other localities for it.

*Dacne fungorum.*

Oblonga, nigra, nitida; elytris macula humerali, capite, antennis pedibusque rufis. L. 3 mill.

Oblong, black and shining; head and thorax sparsely and rather coarsely punctate, the first red, the latter black, with lateral margin obscurely piceous and anteriorly narrowly concolorous with head; elytra punctate-striate, interstices somewhat similarly punctured, with a red irregular blotch at the humeral angle which touches the edge only at the base; antennæ, legs, and tarsi wholly red. Beneath, the prosternum is very minutely rugose and punctured somewhat similarly to the metasternum; the intercoxal or prosternal striæ advance anteriorly a little beyond the coxæ, and posteriorly touch

the base of the prosternum; the mesosternum is more coarsely punctured, and the abdomen is piceous. One specimen, evidently a variety, is obscurely 4-maculate.

This insect is relatively much broader than *D. zonaria*; the humeral spot agrees fairly well with that of *D. bipustulata*, Thunb., from Europe and Siberia, but it is larger and broader.

I have only six specimens of this species—five (including the variety) from Nikko, the other from Horobetsu, in Yezo.

#### MICROSTERNUS.

*Microsternus*, Lewis, Ent. Mon. Mag. xxiv. p. 3 (1887).

Form rather elongate, convex; eyes granulate, moderately prominent; thorax with large punctures, leaving a space in front of the scutellum smooth; elytra finely punctate-striate, pattern varied; antennæ rather robust, second and third joints nearly same length, fourth to eighth moniliform, all same length, eighth rather thicker, the club is compressed and oval; last joint of maxillary palpus but little enlarged; prosternum coarsely sculptured at sides, with the central process raised, marginate and triangular, the median area more or less smooth; the mesosternum is very transverse, and, except under a high power, looks like a margin to the metasternum; tarsi distinctly five-jointed, the fourth smaller than the third, and not padded. In two species, *M. Ulkei* and *higoni*, the thorax is laterally sulcate, the furrow being deepest anteriorly.

#### *Microsternus perforatus*, Lewis.

*Microsternus perforatus*, Lewis, Ent. Mon. Mag. xxiv. p. 3 (1887).

*Episcapha perforata*, Lewis, l. c. p. 140 (1883).

Very similar to *M. Crotchi*; it is larger and darker in colour, and the fasciæ are more defined, with the branch that spreads upwards round the hamate pattern narrower, and the humeral spot is larger and more rotundate. As in *M. tricolor* and *Crotchi* the thorax is simply marginate at the sides, not sulcate.

Taken on Oyayama and at Yuyama, in Higo. Two specimens.

#### *Microsternus Crotchi*.

Elongato-ovatus, piceo-brunneus, capite tenui et parce punctato; thorace utrinque parum grosse punctato, ante scutellum lævi; elytris tenuiter punctato-striatis, transversim bifasciatis; antennis pedibusque obscure nigris. L. 5 mill.



Head irregularly punctate, with two oblique impressions between the antennæ; thorax marginate laterally, coarsely punctate, somewhat densely at the sides, sparsely in the middle, with a transverse space before the scutellum smooth; the elytra are finely punctate-striate, the interstices with smaller punctures scattered irregularly; at the base there is a broad yellowish fascia, which leaves a humeral spot, and the usual hamate pattern behind the scutellum, black, and another before the apex, which leaves the suture and outer edge black. Beneath, the sternal plates are similar to those of *M. tricolor*, as noted below.

Two specimens, from Nishimura in Yamato, are all I obtained.

*Microsternus tricolor.*

Elongato-ovatus, obscure rufo-brunneus, capite thoraceque parce punctatis; elytris tenuiter punctato-striatis, interstitiis inconspicue puncticulatis, luteo-fasciatis; pedibus brunneis; antennis infuscatis. L. 4 mill.

Head and thorax irregularly and sparsely punctate, reddish brown above, but darker beneath, marginate at the sides; elytra with a black humeral spot surrounded by a yellow band, which is narrow at the outer edge, but posteriorly about as broad as the black spot; in the middle of the elytra is a broad irregular black band which, on reaching the fourth stria, becomes concolorous with the head and thorax, and at the second stria extends up to the scutellum; before the apex is a second black band with even edges, and it is separated from the central band by a yellow fascia, broadest at fourth stria; apex reddish yellow. The prosternal process is triangular, marginate and impunctate; the sides of the prosternum are thickly and coarsely granulate; mesosternum inconspicuous.

I obtained five examples at Yuyama, in Higo, in May 1881.

*Microsternus higonius.*

Oblongo-ovatus, piceus; thorace rufo maculato; elytris punctato-striatis, rufis, nigro 6-maculatis; antennis pedibusque rufo-brunneis. L. 2½ mill.

Head and thorax with large scattered punctures, first wholly piceous, second with a longitudinal reddish mark on each side on the disk in a line behind the eyes; the thorax has a broad, raised, lateral margin, parallel to which is a somewhat deep furrow; in front of the scutellum is a crenulate arched line (corresponding a little to the lines common in *Abraei*),

which divides the smooth space from the punctate portion ; the elytra are red, with a black spot, not well defined, at the humeral angle, a second larger and formed as a band near the middle, commencing in the interstice of the second and third striae and touching the outer edge, a third, the size of the humeral one, on the disk before the apex, covering the space from the second to the fifth stria, the interstices are inconspicuously punctured and the scutellum is semicircular and smooth.

The smooth space before the scutellum has been given as a generic character, and in the present insect the punctures bordering it are obliterated posteriorly, which gives an appearance as of a crenulate arch ; the sides of the thorax are more deeply sulcate than in *Microsternus Ulkei*, Crotch.

This very peculiar insect is unfortunately unique. It was taken at Yuyama, in Higo, June 1881.

*Megalodacne bellula*, Lewis.

*Megalodacne bellula*, Lewis, Ent. Mon. Mag. xx. p. 139 (1883), xxiv. p. 3 (1887) (sterna figured).

In fungi on the beech.

The following genus has the prosternal keel broad and ill-defined, and only visible between the coxæ :—

*Encaustes prænobilis*, Lewis.

*Encaustes prænobilis*, Lewis, Ent. Mon. Mag. xx. p. 139 (1883).

Found in the beech-forests of all the islands.

In the two following genera there is no prosternal keel :—

*Episcapha Fortunei*, Crotch.

*Episcapha Fortunei*, Crotch, l. c. p. 188 (1873), p. 140 (1883).

On fungi on *Abies* only ; fairly common.

*Episcapha Gorhami*, Lewis.

*Episcapha Gorhami*, Lewis, l. c. p. 140 (1883).

Abundant in the elevated forests.

*Episcapha taishoensis*, Lewis.

*Episcapha taishoensis*, Lewis, l. c. p. 79 (1874), p. 140 (1883).

Found in Yezo in 1880 and in Higo in 1881 ; it is not rare.

*Episcapha hamata*, Lewis.*Episcapha hamata*, Lewis, l. c. p. 140 (1883).

Not found by myself.

## RENANIA.

Antennæ as long as the head and thorax; first joint stout and short, second and fourth to seventh moniliform and equal in length, third one half longer than fourth, eighth very slightly triangular, ninth and tenth compressed and transversely triangular, eleventh rotundate, the last three forming a rather lax club; maxillary palpi short and not dilated; head moderate, with eyes slightly prominent, and rather coarsely granulate; thorax about one third wider than long, with anterior angles a little produced; elytra about four times as long as the thorax, subparallel; scutellum transverse; legs rather long; fourth joint of tarsus very small. Prosternum marginate at the coxæ only, widening out anteriorly without a keel or raised portion. I do not see any sexual differences; the mesosternum is rather large, and is, with the prosternum, formed much as in *Episcapha*, near to which genus *Renania* may be placed. The name of the brilliant French *littérateur* has been adopted.

*Renania atrocyanea*.

Subelongata, atro-cyanea; capite thoraceque sat parce punctulatis; elytris punctato-striatis. L. 6-6½ mill.

Rather elongate, above dark cyaneous, beneath more obscure; head feebly biimpressed between the antennæ, rather more thickly punctured before than behind; thorax somewhat similarly punctured, with two shallow foveæ at the base, near the middle of each elytron; the margin has a fine stria behind, and is strongly marginate at the sides; the anterior angles are a little produced, with a small and very distinct fovea in the centre of the interstice; the legs are rather elongate and simple in both sexes.

I obtained eleven examples of this species incidentally while beating brushwood in June, but could not trace it to any fungus. One example was found under bark on Oyama in December 1880; Chiuzenji and Kashiwagi are the other localities for it.

NEOTRIPLAX (type *atrata*, Lewis).

Antennæ about the length of the thorax, first and second



joints short and stout, third as long as fourth and fifth together and more slender, fourth to eighth moniliform, seventh and eighth enlarging, ninth to eleventh transverse, compressed, and together forming an oval club; last joint of the maxillary palpus triangularly dilated and rather robust; head robust; eyes very moderately prominent, rather coarsely granulate; thorax as broad again as the length, with narrow reflexed margins; legs in male rather robust, with tarsi dilated, first and second joints transversely triangulate; female, legs and tarsi slender. Prosternum marginate before and behind, without true striæ, and distinctly constricted between the coxæ; mesosternum wide and moderately transverse.

*Neotriplax atrata.*

Oblongo-ovata, convexiuscula, nigra, nitida, parce punctulata; elytris punctato-striatis, interstitiis punctulatis; antennis pedibusque nigris. L.  $5\frac{1}{2}$ - $7\frac{1}{2}$  mill.

This species is congeneric with and very similar to *Cyrtotriplax Lewisii*, Crotch; but it is larger and broader and wholly black. Both species have a semicircular line between the antennæ, which divides the epistoma from the forehead. The general facies, distinct foliation of the club of the antennæ, the dilated tarsi, and the absence of true prosternal lines are sufficient to remove it from *Cyrtotriplax*, of which genus *bipustulata*, F., is the type.

This insect was found not uncommonly in localities where the beech and oak grow in elevated forests; and I obtained it in all the islands. It varies much in size.

*Neotriplax Lewisii.*

*Cyrtotriplax Lewisii*, Crotch, Ent. Mon. Mag. ix. p. 189 (1873).

I once found this in great profusion at Nagasaki in fungoid growth on rails, as recorded by Crotch. In 1880 I found it not uncommonly in the environs of Yokohama, and in the autumn, about October 29th, I saw a large assemblage of it near Nikko.

*Neotriplax biplagiata.*

Ovata, nigra, nitida, macula humerali sanguinea; elytris punctato-striatis, interstitiis puncticulatis. L.  $3\frac{3}{4}$  mill.

Densely black, except the antennæ, palpi, and humeral spot, which occupies the interstices of the fifth, sixth, and seventh striæ, but does not touch the edge; the antennæ are piceous and the palpi flavous. The prosternum is rather

broad posteriorly, narrowed at the coxæ, the striæ turn outwards at the coxæ, nearly touching the sides of the thorax; the anterior edge of the prosternum is marginate. The antennæ have the two basal joints rather large, the third to eighth small, and the club is compressed and oblong-ovate.

I took an example at Miyanoshita and a second on Oyama in May 1880, and both appear from the tarsi to be females.

*Neotriplax pallidicineta.*

Ovata, obscure nigra, nitida; elytris pallidicinctis; antennis pedibusque infuscatis. L.  $3\frac{1}{4}$  mill.

Head rather sparsely, evenly punctured, thorax with fine punctures on the disk and before the scutellum, more coarsely punctate on each side of base; elytra punctate-striate, interstices irregularly punctulate, the outer edge rather broadly yellow, the band being double the breadth at the humeral angle, where it includes the fifth stria, and the band widens again before the apex; the abdomen is pitchy brown.

This and the preceding species, if the males are known to me, are without the conspicuously dilated tarsi seen in *N. atrata* and *Lewisii*; but I do not consider the material at hand sufficient to decide the question. The prosternum is formed on the same plan in the four species.

Fukushima, two specimens, July 1881, also probably females.

*Cyrtotriplax sobrina.*

*C. consobrina* proxime affinis, sed paulo major; nigra, nitida; antennis pedibusque nigris; elytrorum macula sanguinea tripartita. L.  $4\frac{1}{2}$ –5 mill.

This is the Japanese representative of *C. consobrina* and *bipustulata*. The punctuation is the same, but the red elytral fascia is divided into three parts; a broad sinuate band, touching the outer edge, extends inwards to the second stria, leaving the suture black, and then passes upwards to the base of each elytron, occupying the space of the interstices between the third and fifth stria. The legs and tarsi are longer, and the tibiæ, especially the middle pair, more dilated. The prosternal striæ are hamate anteriorly, and terminate at a point distant from one another. In *C. consobrina* the prosternal striæ tend throughout their length to converge, and do nearly meet in front.

*Cyrtotriplax centralis.*

Ovata, nigra, nitida; ore, antennarum funiculo tarsisque rufis;

capite parum grosse punctato, utrinque rufo; scutello nigro; elytris basi rufis, apice nigris, in medio nigro-punctatis. L.  $4\frac{1}{2}$  mill.

This species is a true *Cyrtotriplax*, and in many characters is similar to *C. sobrina*: the thorax is much less wide, the lateral margin more robust; the club of the antennæ alone is black, the head is triangularly black in front, red at the sides; the elytra are red at the base, and in the central region this colour extends halfway down, enclosing a round black spot immediately below the scutellum; at the sides of the elytra the black colour encroaches on the red to the middle of the fourth interstice. The prosternum is rugosely punctate, with striæ widely separate and not hamate; the mesosternum is red at base.

Captured between Nikaido and Kashiwagi, June 15, 1881.

*Cyrtotriplax pantherina.*

Ovata, rufo-testacea, nigro maculata; antennis pedibusque testaceis. L.  $4\frac{1}{2}$  mill.

Red; head and thorax somewhat densely punctate; head with a black oblong spot between the eyes, two larger spots on thorax, touching its base at centre of each elytron; scutellum black; elytra with two large black transverse spots at the edge below the humeral angle and two spots behind the scutellum, confluent at the suture; the apical portion has a very wide irregular band which leaves the ends of the elytra alone red. The prosternal lines are anteriorly hooked and nearly converge; the fore part of the prosternum and the metasternum are dark-coloured.

A good series was brought from Oyayama, near Kumamoto, in Higo, June 1881, by a native collector.

*Cyrtotriplax latifasciata.*

Ovata, nigra, nitida, capite basi rufo, scutello nigro; elytris late bifasciatis; antennis (basi excepta) pedibusque nigris. L.  $3\frac{1}{2}$  mill.

Black and shining; head and thorax rather finely punctate, former transversely red at base, latter wholly black; the elytra are black, with a broad fascia at the base, apically irregular, broadest between fifth and sixth striæ, narrowest at third; the second band is broadest at the same point, the anterior one is slightly the wider, and the extremities of the elytra are reddish; the posterior line of the posterior red band is not irregular; the legs are black, with the tarsi red.

The prosternal striæ are turned inwards anteriorly, but are not hamate, and are widely separate.

Taken in Higo.

*Cyrtotriplax nigropunctata.*

Ovata, nigra, nitida, punctata; ore, antennarum funiculo tarsisque piceis; elytris rufis, apice, punctis regioneque scutellari nigris. L.  $3\frac{1}{2}$  mill.

Black; head rather more coarsely punctured than thorax; elytra red, with a large semicircular spot round the scutellum and two small spots transversely placed to each other before the middle of each elytron, one on the elytral edge, the other on the fifth and sixth striæ, black; the apices of the elytra for about one third of their length are also black, the pattern ending in two semicircular edges, divided into two parts at the fifth stria. The prosternal striæ curve inwards anteriorly, but are widely separate from each other.

I took this at Miyanoshita in May 1880.

*Cyrtotriplax pallidiventris.*

Ovata, nigra, nitida, ore abdomineque rufo-testaceis. L. 4 mill.

Ovate, black and shining; head and thorax rather thickly punctured, and seen under the microscope to be minutely strigose; base of the head obscurely pitchy red; the elytra very distinctly punctate-striate, with the interstices nearly smooth; the legs are rather robust. Beneath, the pro- and mesosternum are rugosely punctate, the fourth posterior segment of the abdomen reddish yellow; the prosternal lines continue narrowly round the base, and gradually approach each other anteriorly, but owing to the rugose surface it is difficult to see whether they meet or not.

I captured three examples near the waterfall at Chiuzenji, Aug. 22, 1881.

*Cyrtotriplax cenchrus.*

Late ovata, rufa; elytris apice infuscatis, antice nigro 4-maculatis. L.  $2\frac{3}{4}$ -3 mill.

\* Rather broadly ovate, red; head punctate, thoracic punctures finer and more scattered; elytra wholly punctate, the striæ being indistinct owing to a similar sculpture of the interstices; each elytron has two black spots (smaller and larger in different specimens), one below the humeral angle, with the second posterior to it, the apex being infuscate, as though a third spot were obsolete; round the two black spots the colour is sometimes yellowish, giving a tricolour appear-

ance to the specimens ; but this is not always the case ; the club of the antennæ is infusate. Beneath the body is wholly red, and anteriorly the prosternal lines are widely separate and very slightly bent inwards. Legs red and not robust.

I took a small series at Fukushima, July 28, 1881, one at Kashiwagi in June, and later I received it from Higo.

*Cyrtotriplax maculifrons.*

Late ovata, nigra, nitida ; capite basi transversim rufo ; elytris distincte punctato-striatis, interstitiis sparsim punctulatis, rufis, antice bimaculatis, postice fasciis duabus latis communibus ; antennarum funiculo tarsisque rufis. L. 3-3½ mill.

Rather broadly ovate, black ; head and thorax equally punctured, the first red between the eyes, the second wholly black ; scutellum and elytra red, latter with two large, rather transverse, black spots before the middle and beginning inwardly in the centre of the second interstice, and covering five striæ, before the apex is a large black spot common to both elytra, being joined at the suture, which leaves the apex and a narrow marginal space red. Beneath, all the abdominal segments are red ; the prosternum is broad at the base, the striæ leaving a triangular space, widest at base ; anteriorly the striæ are incurved, but terminate moderately apart.

Found on Oyama, May 25, 1880, and two others came from Higo in the spring of the following year.

*Cyrtotriplax discalis.*

Ovata, nigra, nitida ; antennis tarsisque piccis, scutello rufo ; elytris punctato-striatis, interstitiis subtiliter punctulatis, rufis, posticis disci late nigris. L. 3-3¼ mill.

Ovate, black ; head more coarsely punctured than thorax, the latter with punctures much scattered, and under the microscope the surface is seen to possess a minute mosaic-like sculpture ; the elytra are red at the base for nearly one third of their length, when the disk posteriorly becomes black, leaving only a narrow margin red. Beneath, the surface is sculptured minutely, like the thorax ; the last segments of the abdomen have reddish margins ; the mesosternum more transverse than usual in the genus ; prosternal striæ straight at sides and anteriorly slightly turned inwards.

Taken at Nikko and Kashiwagi. Two examples only.

*Cyrtotriplax rufipennis.*

Ovata, nigra, nitida ; elytris rufis, distincte punctato-striatis, interstitiis subtiliter punctulatis ; subtus abdomine marginali testaceo. L. 4 mill.

Black ; head and thorax sparsely and not coarsely punctured. *Ann. & Mag. N. Hist. Ser. 5. Vol. xx.* 5



tate, the first narrowly red at base, both very minutely strigose under a high power, the second with lateral margins piceous; scutellum and elytra red, the latter distinctly punctate-striate; interstices with fine, somewhat irregular punctures, although sometimes appearing to be set in rows; first three joints of antennæ and club piceous, intermediate joints sometimes and tarsi always reddish. Prosternum rather rugose, striæ straight, turned inwards anteriorly, but fairly wide apart; abdominal segments two to five margined with yellow posteriorly.

Three examples, on Rakuwayama, near Hitoyoshi, May 3, 1881.

*Cyrtotriplax niponensis*, Lewis.

*Cyrtotriplax niponensis*, Lewis, Ent. Mon. Mag. xi. p. 78 (1874).

This species is wholly black, except the base of the antennæ, the palpi, and coxæ, which are pitchy red. The prosternal lines are slightly curved at the tips. It varies in size from 3 to 4 millim., and occurs commonly at Nikko and Miyanoshita; and I obtained it also sparingly in all the islands, including Sado. Reitter records it from Siberia.

*Cyrtotriplax solivaga*.

Ovata, nigra, nitida, ore antennisque piceis; elytris in medio obscure rufo-punctatis. L.  $4\frac{1}{4}$  mill.

Black; head and thorax evenly and somewhat sparsely punctured (minutely strigose under microscope); elytra rather strongly punctate-striate, with interstices very finely and sparsely punctulate. Below the humeral angle on the sixth stria there is an obscure reddish spot. Prosternal process raised and triangular, the stria meeting at the anterior edge, thus  $\Delta$ , completely enclosing the space between; and this last character will distinguish it from any other Japanese species at present known.

I obtained this in the beech-forest to the south of the lake at Hakone, April 23, 1880.

*Cyrtotriplax circumcincta*.

Late ovata, nigra, nitida, punctata; elytris parum latis, flavo-rufis; antennis pedibusque nigris. L. 4 mill.

Black and shining; head and thorax somewhat densely but not coarsely punctate, minutely strigose (very distinctly so under microscope); elytra punctate-striate, interstices wholly punctulate, at the base, outside the fourth stria, red, after the middle this red margin narrows to the seventh stria. Beneath, the anterior portion of the metasternum and first segment of abdomen are transversely red; the four poste-

rior segments of the latter are also red; the prosternal process is rather raised in front, and the striæ resemble those of *C. niponensis*.

Three specimens, taken at Miyanoshita, May 1880.

*Cyrtotriplax tripartiaria.*

Ovata, nigra, nitida, ore antennisque piceo-rufis; capite thoraceque parum dense punctatis; scutello rufo; elytris antice rufis, postice nigris. L. 4 mill.

Black, shining; thorax evenly and somewhat densely punctate; scutellum smooth and red; elytra, base wholly red, apex wholly black, each colour occupying about half the elytral area; behind the scutellum the black encroaches on the red, at the fifth stria and outer edge the red encroaches on the black. Beneath, the sides of the abdomen are broadly red, also the tarsi; the prosternal lines are anteriorly hamate.

I possess four specimens from Higo.

*Cyrtotriplax basalis.*

Breviter ovata, nigra, nitida; antennis pedibusque dilutioribus, capite basi rufo thoraceque parum dense punctatis; scutello nigro; elytris basalibus rufis, punctato-striatis, interstitiis obscure punctulatis; tibiis robustis. L.  $3\frac{1}{4}$  mill.

Black and shining; head and thorax evenly and somewhat densely punctured; neck reddish; elytra punctate-striate, punctures rather fine, interstices very finely punctulate; the region behind the scutellum is piceous to the breadth of one interstice; after the first stria a red band begins, which widens out on the interstices on each side of the fifth stria and touches the outer edge. Beneath, the elytral fold is red at the humeral angle, and the anterior edge of the prosternum is transversely obscure yellow; the prosternum is minutely rugosely strigose, the sculpture assuming the mosaic form on the metasternum; the prosternal lines are bent inward at their apex.

I swept one example of this very distinct species on Oyama, May 24, 1880.

The following species have black or blue black elytra and the thorax wholly red or nearly so, and superficially appear to be like an ordinary *Triplax* except in being convex:—

*Cyrtotriplax similis.*

Oblongo-ovata, rufa, nitida; elytris nigris, punctato-striatis; antennis basi pedibusque rufis. L. 5 mill.

Red; head and thorax sparsely and rather evenly punctured, the punctures at the base of the head being relatively large; the scutellum is obscurely red, broadly margined at the sides with black; the elytra are somewhat finely punctate-striate,

with interstices finely and sparsely punctulate; the antennæ have the basal joints red, five to eight darker and the club blackish; legs red, with the tibiæ rather robust, the middle pair angulated at the base. Beneath wholly red; prosternum with six or seven punctures, with the stria slightly curved anteriorly.

I took only five examples at Nikko and Kashiwagi.

*Cyrtotriplax ruficornis.*

Oblongo-ovata, capite elytrisque nigris; antennis pedibusque rufis. L.  $4\frac{1}{4}$  mill.

Head and thorax evenly and sparsely punctured, punctures at the base of the head not large, as they are in *C. similis*; head, elytra, meso- and metasterna black, the rest red; the prosternal lines are very long and nearly touch the anterior edge; the prosternal process is somewhat raised and truncate in front; the tibiæ are not robust or angulate, as in the last species.

One example taken at Nikko and another at Kashiwagi.

*Cyrtotriplax connectens.*

Oblongo-ovata, capite elytrisque nigris, pedibus flavis. L.  $3\frac{3}{4}$  mill.'

Head and thorax sparsely and evenly punctate, head black, antennæ red with club infuscate; thorax red, narrowly black behind the neck and in front of the scutellum; scutellum and elytra black, latter punctate-striate, the interstices with well-marked punctures, often in rows. Beneath, the thorax is red with infuscate base; abdomen broadly margined with obscure yellow, the rest black; prosternal lines anteriorly very fine and disappearing gradually in front of the coxæ; the mesosternum has a few large punctures; metasternum with finer and more numerous punctures; legs and palpi yellow, former not robust.

Ikenchaiya, June 22, 1881.

The specific name is chosen because the species leads out of *Cyrtotriplax* into *Triplax*. *Triplax gracilentata* is a very similar species to this, and I am not sure, when a fair revision of the family is made, the two genera will be declared distinct.

Thus it appears from the material now at hand that *Cyrtotriplax* has species which link it very closely with *Triplax*; in other words, it may be said that the convexity of the forms in the first genus is not always pronounced.

*Triplax gracilentata.*

*Triplax gracilentata*, Solsky, Deutsche ent. Zeit. p. 23 (1879).

*Triplax sibirica*, Crotch, Revis. p. 90.

Oblongo-ovata; thorace flavo, antice et postice anguste infuscato; antennis pedibusque flavis. L.  $3\frac{3}{4}$  mill.

Head black, punctate; thorax flavous, with a narrow band

before the scutellum and another behind the neck, infuscate; punctures of thorax finer on the disk than on the sides; scutellum black, with a very few minute punctures; elytra punctate-striate, interstices irregularly punctate, punctures most visible between the suture and the first stria.

Monsieur Hiller obtained this at Hagi, near Shimonoseki, and I took six specimens from a fungus on *Salix*, at Nowata, June 22, 1880.

*Triplax devia.*

Oblongo-ovata, nigra; thorace rufo, antice et postice rotunde nigro maculato; antennis tarsisque infuscatis. L.  $3\frac{3}{4}$ –4 mill.

Head red, with clypeus and spot before the neck (often covered by thorax) infuscate; punctures rather large and sometimes ocellate, surface very minutely strigose; thorax rather evenly punctate, but punctures largest at the sides; behind the neck and in front of the scutellum are two large round black spots; elytra punctate-striate, interstices irregularly and finely punctate. Beneath, the prosternum is rugose and punctate, black between the coxæ, raised in the middle and slightly acute in front, lines incurved anteriorly or bent, being difficult to see owing to the rugosity of the surface; mesosternum with a variolous sculpture; abdomen, segments very minutely sculptured throughout, with fair-sized punctures interspersed, and in the three median segments the punctures are arranged in transverse bands.

Abundant at Hitoyoshi, May 3, 1881. Taken also at Nikko and Miyanoshta not uncommonly.

*Triplax ainonia.*

Oblongo-ovata, subopaca, dense punctata; thorace flavo, antice et postice in medio infuscato; antennis (clava excepta) pedibusque flavis. L. 3– $3\frac{1}{2}$  mill.

Above a little opaque and densely punctate; head and elytra obscurely, not intensely, black; the thorax is yellow, with a transverse antescutellar spot fuscous, and a similarly coloured maculation behind the head, which is characteristic because posteriorly much narrowed in the middle; the scutellum is blackish with seven or eight punctures; the elytra are punctate-striate, and all the interstices distinctly punctate, the punctures composing the striæ not varying much in size from those of the interstices. Beneath, the prosternal process is a little raised, but the striæ do not go much beyond the coxæ and terminate gradually. On the pro- and mesosternum the punctuation is rather large; the metasternum is minutely strigose (when seen under a high power) and sparsely punctate; the abdominal segments are also densely punctate.

The coloration is very similar indeed to that of the last species, but it is readily known by the punctuation.

I took some specimens from a fungus growing out of the lintel of an Aino hut near Shiraoi, and I have other examples from Sapporo and various places in South Yezo, and I think it is common in that district; but my visit to this Japanese Ultima Thule was of short duration.

*Triplax sufflava.*

Oblonga, pallide testacea; antennis pedibusque subinfuscatis. L.  $4\frac{1}{2}$  mill.

Pale yellow, head sparsely but coarsely punctured; thorax with coarse punctures at the base on each side, with fine ones in front of the scutellum. The punctures forming the elytral striæ are also large, interstices less coarsely punctate, punctures placed in irregular rows, the apical disk of the elytra is suffused with a brownish colour; the scutellum is smooth. The last nine joints of the antenna are brownish, and the apical joint of the palpus is so transverse that its breadth equals the length of the first eight joints of the antenna. The prosternum has no proper lateral lines or striæ, but the coxæ are marginate.

Three examples, taken variously at Nikko, Chiuzenji, and on the road to Shingu in Yamato.

*Triplax lætabilis.*

Oblonga, nigra, nitida; elytris punctato-striatis, interstitiis tenuiter punctatis; antennis pedibusque in totum testaceis. L.  $3\frac{1}{2}$  mill.

Black and very shining; elytra punctate-striate, interstices faintly punctured; legs, palpi, and antennæ testaceous, the latter somewhat abbreviated and robust, six to eight joints being slightly transverse. Beneath, the prosternum is almost impunctate, the prosternal process is raised, widest at base and terminating anteriorly acutely, the lateral lines meet in front at the edge of the prosternum. The mesosternum is transverse, almost impunctate, the metasternum is angulate on each side near the coxæ and sparsely punctulate. The abdominal segments are microscopically strigose and obscurely red, except the basal ones, which are dark at the sides.

I obtained one example by a fortuitous stroke of the sweeping-net near the Ikenchaya in Yamato, June 22, 1881.

*Triplax canalicollis.*

Oblongo-ovata, nigra, nitida, punctata; thorace lateraliter canaliculato; capite, antennis pedibusque rufis. L.  $3\frac{1}{2}$  mill.

Black, shining; head, legs, palpi, antennæ (which are very small) and four apical segments of abdomen red; the thorax



is fairly punctured, with sides distinctly canaliculate. The punctures are large on the prosternum and the surface rather rugose; the lateral striæ do not pass anteriorly beyond the coxæ, where they are a little incurved at right angles. The abdomen is microscopically strigose, with some scattered punctures.

Four specimens, from Hakodate, Hitoyoshi, and Kashiwagi, localities showing a wide distribution for the species.

*Triplax discicollis.*

Elongato-oblonga, nigra, nitida; thorace flavo, disco infusato pedibusque flavis; antennis basi rufis. L. 5 mill.

Head and thorax sparsely but rather coarsely punctured, the first black, the second yellow with disk largely and somewhat irregularly infusate (in one specimen the dark disk is longitudinal only); scutellum impunctate; elytra finely punctate-striate, interstices irregularly and somewhat indistinctly punctulate; legs pale; antennæ, first three or four joints reddish, the rest infusate. The prosternum has scattered and rather coarse punctures, the prosternal lines terminating immediately before the coxæ.

In general coloration this species is similar to *T. amæna*, Solsky, with the exception of the elytra and abdomen, which are black. In *T. amæna* the elytra are subcyaneous and the abdomen red, and the outline is somewhat broadly ovate.

I obtained only five examples at Miyanoshita and Kashiwagi.

*Triplax japonica.*

*Triplax japonica*, Crotch, Ent. Mon. Mag. ix. 1873, p. 189.

“Oblonga, læte ferruginea, antennis (basi excepta), pectore elytrisque nigris.”

Additional localities for this species are Junsai, Hakodate, Sendai, Miyanoshita, Kiga, and Hitoyoshi. “It resembles *rufipes*.”

*Triplax atricapilla.*

Oblonga, subparallela, læte rufa; capite, antennis, pedibus elytrisque dimidio apicali nigris. L. 6¼ mill.

This fine species is almost the same in colour and structure as *T. apicata*, Crotch, from Assam. The only differences I see are that the head is wholly black and the prosternal lines more parallel in *T. atricapilla*.

I found one at Nara, June 30, 1881, and afterwards received four specimens from Higo. All are exactly alike.

## EUDÆMONIUS.

Antennæ fine and slender, the length of the thorax, first joint relatively stout and short, second short and much constricted before the middle, third somewhat small at the base and not so long as fourth and fifth together, fourth to eighth moniliform, sixth to eighth smaller than two preceding, ninth to eleventh equal in length, feebly (they are almost moniliform) dilated and not closely pressed; last joint of maxillary palpus very transverse; head with eyes prominent, not coarsely granulate; thorax broader than long, the middle of the base encroaching on the region of the scutellum; elytra subparallel, rather convex, with eight striæ; a sutural stria; legs rather short, tarsal joints one to three equal in length and breadth. Prosternum striate between the coxæ, striæ touching the base; mesosternum moderately large.

♂. Epistoma tuberculate anteriorly; tibiæ robust, anterior pair strongly rugose on the inner surface; tarsi moderately dilated.

♀. Epistoma subconvex; head smaller than in male, with the eyes more prominent; the legs and tarsi also are more slender. This sex is much smaller than the male.

The genus is allied to *Amblyopus*.

*Eudæmonius tuberculifrons*.

Oblongo-ovatus, parum convexus; capite nigro; thorace flavo, ante scutellum punctisque quatuor disci nigris; elytris punctato-striatis, pedibusque nigris. L. 5-8 mill.

Oblong-ovate, rather convex; head, antennæ (except second joint, which is pitchy red), elytra, legs, meso- and metasterna, and base of prosternum narrowly black; thorax flavous, with four black spots in a transverse line and a large black spot before the scutellum; head and thorax somewhat closely punctured, the latter with marginal striæ on all sides fine; elytra punctate-striate, with an additional sutural stria which does not touch the base; the interstitial punctuation is fine and scattered. The prosternum is somewhat raised in the centre, with two short coxal striæ; the mesosternum is proportioned much as in *Amblyopus*, to which genus *Eudæmonius* is apparently allied. The sexual characters as given above are very remarkable and conspicuous.

I took it at Miyanoshita and at Chiuzenji, abundantly in fungi on old cherry-trees, in May and June, and in August a few specimens at Sapporo, in Yezo.

*Aulacochilus Bedeli*, Harold.

*Aulacochilus Bedeli*, Harold, MT. Münchn. ent. Ver. iv. p. 170.

This species was first taken by Hilgendorf at Nikko; I obtained it in Higo early in June, and at the end of the month not uncommonly at Nara and Bukenji.

*Aulacochilus japonicus*, Crotch.

*Aulacochilus japonicus*, Crotch, Ent. Mon. Mag. 1873, p. 189.

On my second visit to Japan I found this insect, as above stated (p. 54), in Kioto, June 17, 1881, and other examples at Yokohama and Mayebashi.

In both the Japanese species of this genus, the prosternal striæ terminate before the coxæ, and the mesosternum is very widely marginate anteriorly.

## SATELIA.

Antennæ as long as the thorax, first joint rather large, second smaller and round, third slightly longer than fourth and fifth together, third to eighth of nearly the same thickness, ninth to eleventh forming an oblong-ovate club; last joint of maxillary palpus robust and not angular; head moderate; eyes not prominent; scutellum cordate; prosternal process as in *Aulacochilus violaceus* (fig. 2, Ent. Mon. Mag. xxiv. p. 3, 1887); the mesosternum has a crenulate arched line beginning at the base and anteriorly crossing the centre. The general facies of this genus is that of a small *Dacne*, but the tarsi and prosternum are similar to those of *Aulacochilus*.

*Satelia scitula*.

Oblongo-ovata, subæneo-nigra, nitida, capite obscure rufo; elytris anticis oblique, apice transversim flavo-maculatis; antennis obscure rufis, pedibus rufo-testaceis. L.  $2\frac{1}{2}$ – $2\frac{3}{4}$  mill.

Head and thorax evenly and rather finely punctured, the first usually red, sometimes piceous, second black or obscure æneous black with distinct lateral margins; the elytra are punctate-striate with the interstices vaguely punctulate, the anterior yellow fascia begins before the middle of the elytron between the first and second stria and after the fourth stria passes up to the humeral angle, the posterior band is transverse, leaving the suture and apex black; the arched crenulate stria of the mesosternum is a very striking character; the prosternum in front of the anterior coxæ has large subocellate punctures, within the prosternal lines the sculpture is rather rugose.

I took about a dozen examples in Higo and a few in Yamato. The species is a little variable in regard to the size of the fasciæ.